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10/535,379	04/04/2006	James Edward Delves	DPS-030805 PET-1011US	7200

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EXAMINER	
SNELTING, JONATHAN D	
ART UNIT	PAPER NUMBER
3652	
MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/535,379	DELVES ET AL.	
	Examiner	Art Unit	
	Jonathan Snelting	3652	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *19 May 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-32* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-32* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☒ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *19 May 2005* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Drawings

1. Where only a single view is used in an application to illustrate the claimed invention, it must not be numbered and the abbreviation "FIG." must not appear. See 37 CFR 1.84(u)(1).

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "means for establishing a swirling or coanda flow" from claim 2 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

3. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, the "ultrasonic unit" from claim 13 must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering

of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

4. The disclosure is objected to because of the following informalities: page 1, line 32 recites "it may be **that that** the original storage tank" which appears to be a typo. Appropriate correction is required.

Claim Rejections - 35 USC § 112

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Claims 1-18 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

7. Claim 1 recites "Apparatus for transferring settled or suspended solids" which is indefinite. It is unclear whether the intended use of the apparatus is transferring settled solids, transferring suspended solids, or transferring both settled solids **and** suspended solids.

8. Claims 2-18 are rejected under 35 U.S.C. 112, second paragraph, as being dependent on a rejected base claim.

9. Claim 11 recites "a bypass line is provided to allow fluid from the **open vessel** to bypass the fluidising unit and to pass directly into the slurry discharge line." The applicant's disclosure describes only one line 26 from the open vessel 2, but line 26 does not bypass a fluidising unit. The applicant's disclosure does describe a bypass line 44 from the **closed vessel**, which bypasses fluidising unit 12 directly into slurry discharge line 4. The examiner believes that "open vessel" in claim 11 is a typo, and should be corrected to "closed vessel."

10. Regarding claim 2, element "means for establishing a swirling or coanda flow" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function.

11. Regarding claim 6, element "means…for controlling the rate at which solids are transferred" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. Please note: simply reciting "software", appropriate programming", or "an algorithm" (or in this case "computer 50") is insufficient disclosure of the corresponding structure for performing the claimed function.

12. Regarding claim 14, element "means…for controlling the flow rate and/or concentration of suspended solids" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. However, the written description fails to disclose the corresponding structure, material, or acts for the claimed function. Please

note: simply reciting "software", appropriate programming", or "an algorithm" (or in this case "computer 50") is insufficient disclosure of the corresponding structure for performing the claimed function.

13. Applicant is required to:

a. Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

b. Amend the written description of the specification such that it expressly recites what structure, material, or acts perform the claimed function without introducing any new matter (35 U.S.C. 132(a)).

14. The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

15. Claims 2-7 and 14-18 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

16. Regarding claim 2, element "means for establishing a swirling or coanda flow" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. The written description only implicitly or inherently sets forth the corresponding structure, material, or acts that perform the claimed function.

17. Regarding claim 6, element "means…for controlling the rate at which solids are transferred" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. The written description only implicitly or inherently sets forth the corresponding structure, material, or acts that perform the claimed function. Please note: simply reciting "software", appropriate programming", or "an algorithm" (or in this case "computer 50") is insufficient disclosure of the corresponding structure for performing the claimed function.

18. Regarding claim 14, element "means…for controlling the flow rate and/or concentration of suspended solids" is a means (or step) plus function limitation that invokes 35 U.S.C. 112, sixth paragraph. The written description only implicitly or inherently sets forth the corresponding structure, material, or acts that perform the claimed function. Please note: simply reciting "software", appropriate programming", or "an algorithm" (or in this case "computer 50") is insufficient disclosure of the corresponding structure for performing the claimed function.

19. Pursuant to 37 CFR 1.75(d) and MPEP §§ 608.01(o) and 2181, applicant is required to:

a. Amend the claim so that the claim limitation will no longer be a means (or step) plus function limitation under 35 U.S.C. 112, sixth paragraph; or

b. Amend the written description of the specification such that it expressly recites the corresponding structure, material, or acts that perform the claimed function and clearly links or associates the structure, material, or acts to the claimed function, without introducing any new matter (35 U.S.C. 132(a)); or

c. State on the record what the corresponding structure, material, or acts, which are implicitly or inherently set forth in the written description of the specification, perform the claimed function.

18. Claims 3-5, 7, and 15-18 are rejected under 35 U.S.C. 112, first paragraph, as being dependent on rejected base claims.

17. Claims 21 and 26-27 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.

19. Consider claim 21. While the disclosure is enabling for a method in which fluid is recirculated between the closed vessel and the open vessel, the disclosure is not enabling for a method in which no additional fluid is added to or removed from the system. The applicant discloses a lone method in which fluid is added to the system by water tank 30 and pump 32, and in which fluid is removed from the system through slurry discharge line 4.

20. Consider claim 26. While the disclosure is enabling for a method in which fluid may be added to transport solids from the open vessel to the closed vessel, the disclosure is not enabling for a method in which no fluid other than the fluid in the open vessel is used to transport solids from the open vessel to the closed vessel. The applicant discloses a lone method in which fluid from water tank 30 may travel through

water supply line 34, bypass line 42, bypass line 40, and suction line 22, and may be used to transport solids from the open vessel to the closed vessel.

21. Consider claim 27. While the disclosure is enabling for a method in which fluid may be added to transport solids from the closed vessel to the discharge vessel, the disclosure is not enabling for a method in which no fluid other than the fluid in the open vessel is used to transport solids from the closed vessel to the discharge vessel. The applicant discloses a lone method in which fluid from water tank 30 is used to transport solids from the closed vessel to the discharge vessel. It is possible that claim 27 contains a typo, but—as claim 27 is written—the examiner is unable to examine claim 27 in view of the prior art.

Claim Rejections - 35 USC § 102

17. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

18. Claims 1-6, 19-21, 26, and 28-31 are rejected under 35 U.S.C. 102(b) as being anticipated by Stinson (Patent No. 2,941,783).

22. Consider claim 1. Stinson teaches a suction line (17) from a closed vessel (16, 37) to an open vessel (well 4) via drive means (pump 18), a solids feed line (31), and a fluidising apparatus (rotary drill bit 6).

23. Consider claims 2-5. Stinson teaches a flow chamber (4), means for establishing a swirling or coanda flow (6), and a transport outlet (31) which is external to the flow

chamber, situated directly above the flow chamber, and situated close to the flow chamber.

24. Consider claim 6. Stinson teaches means (valve 22) for controlling the rate at which solids are transferred from the open vessel to the closed vessel.

25. Consider claims 19-20. Stinson teaches drawing fluid from the closed vessel into the open vessel (via lines 17, 23, 24, 7) by means of a pump (18), operating a fluidising unit (rotary drill bit 6), and drawing fluid and fluidised solids from the open vessel into the closed vessel (via line 31).

26. Consider claim 21. Stinson teaches that fluid (drilling mud 14) is recirculated between the closed vessel (16, 37) and the open vessel (4). Stinson teaches valves 21, 38, 53, 54, 56, and 66 which can be closed so that no additional fluid is added to or removed from the system.

27. Consider claim 26. Stinson teaches valves 21, 38, 53, 54, 56, and 66 which can be closed so that no fluid other than the fluid in the open vessel is used to transport solids from the open vessel (4) to the closed vessel (16, 37).

28. Consider claims 28-31. Stinson teaches a method which is capable of operating below sea level to remove material for transport to shore, capable of removing material from the seabed for dredging or mining, capable of removing radioactive waste solids, and capable of conveying material from the base of a mine shaft to the surface.

Claim Rejections - 35 USC § 103

19. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

20. Claims 7-10, 14-17, 22-25, and 32 rejected under 35 U.S.C. 103(a) as being unpatentable over Stinson (Patent No. 2,941,783) in view of Young et al. (Patent No. 5,098,667), hereafter referred to as Young.

29. Consider claim 7. Stinson teaches means (valve 22) for controlling the rate at which solids are transferred from the open vessel to the closed vessel, but Stinson's means does not comprise a flow meter. Young teaches using a flow meter (58, 56) in conjunction with a valve (78). It would have been obvious to a person having ordinary skill in the art to modify Stinson's valve with Young's flow meter in order to provide closed-loop feedback control to the valve.

30. Consider claim 8. Stinson teaches a closed vessel (16, 37), but Stinson's closed vessel does not comprise a feed vessel. Young teaches a feed vessel (40) which feeds solids into a transport vessel (20) containing a fluidising unit (stirrer 46). It would have been obvious to a person having ordinary skill in the art to modify Stinson's closed vessel with Young's feed vessel, transport vessel, and fluidising unit in order to convey the solids to a discharge vessel.

31. Consider claim 9. Stinson does not teach a transport vessel. Young teaches a transport vessel (20) with a solids outlet (60) through which solids are discharged at a controlled rate along a slurry discharge line (labeled "TO REACTOR" in fig. 1). It would have been obvious to a person having ordinary skill in the art to modify Stinson's closed

vessel with Young's transport vessel, solids outlet, and slurry discharge line in order to convey the solids to a discharge vessel.

32. Consider claim 10. Stinson does not teach means for measuring the flow rate of slurry discharge. Young teaches means for measuring the flow rate of slurry discharge (58, 56). It would have been obvious to a person having ordinary skill in the art to modify Stinson's closed vessel with Young's means for measuring flow rate in order to provide closed-loop feedback control to a control valve.

33. Consider claims 14-17. Stinson teaches means (valve 22) for controlling the flow rate of suspended solids from the open vessel (4) to the closed vessel (16), but does not teach means for controlling the flow rate based on the flow rate of solids from the transport vessel. Young teaches means (valve 16, computer 100, and flow meter 58, 56) for controlling the flow rate of suspended solids from an open vessel (10) to a closed vessel (40, 20) and means (valve 78, computer 100, and flow meter 58, 56) for controlling the flow rate of suspended solids from a transport vessel (20) based on the flow rate of suspended solids from the transport vessel (20) to maintain the solids content at a constant level (see column 5, lines 28-37). Young's flow meter 58, 56, in conjunction with gamma density gauge 74 and computer 100, is a mass flow meter as described in column 2, lines 7-12. It would have been obvious to a person having ordinary skill in the art to modify Stinson's apparatus with Young's means of controlling flow rate in order to accurately convey a predetermined quantity of solids to a discharge vessel.

34. Consider claims 22-24. Stinson does not teach controlling the rate of discharge of solids from a closed vessel. Young teaches controlling the rate of discharge of solids from a closed vessel (20) to a discharge vessel (labeled "TO REACTOR" in fig. 1) via a valve (78) so that a desired concentration of solids is discharged at a constant rate (see column 5, lines 28-37). It would have been obvious to a person having ordinary skill in the art to modify Stinson's method with Young's step of controlling the rate of discharge of solids in order to accurately convey a predetermined quantity of solids to a discharge vessel.

35. Consider claim 25. Stinson does not teach fluidising the solids in the discharge vessel. Young teaches fluidising the solids in the discharge vessel (via stirrer 46). It would have been obvious to a person having ordinary skill in the art to modify Stinson's method with Young's step of fluidising the solids in the discharge vessel in order to convey the solids to a discharge vessel.

36. Consider claim 32. Stinson does not teach a method which is capable of conveying material directly into the suction line of a slurry pump. Stinson in view of Young teaches a method capable of conveying material directly into the suction line of a slurry pump at concentrations matched to the pump's characteristics (see column 5, lines 28-37). It would have been obvious to a person having ordinary skill in the art to modify Stinson's method with Young's capability of conveying directly into the suction line of a slurry pump in order to convey the solids to a discharge vessel at a higher elevation.

37. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stinson (Patent No. 2,941,783) in view of Young (Patent No. 5,098,667) as applied to claim 9 above, and further in view of Muralidhara et al. (Patent No. 4,802,964), hereafter referred to as Muralidhara.

38. Consider claim 13. Stinson in view of Young teaches a slurry discharge line (labeled "TO REACTOR" in Young's fig. 1), but does not teach an ultrasonic unit in the slurry discharge line. Muralidhara teaches an ultrasonic unit (dewatering zone 10 and ultrasonic generator 15). It would have been obvious to a person having ordinary skill in the art to modify the slurry discharge line of Stinson in view of Young with Muralidhara's ultrasonic unit in order to separate liquid from solids (see Muralidhara, abstract, lines 1-5).

39. Claim 18 is rejected under 35 U.S.C. 103(a) as being unpatentable over Stinson (Patent No. 2,941,783) in view of Young (Patent No. 5,098,667) as applied to claim 17 above, and further in view of Gomi et al. (Patent No. 5,796,012), hereafter referred to as Gomi.

40. Consider claim 18. Stinson in view of Young teaches a flow meter, but does not explicitly state whether the flow meter is a coriolis or ultrasonic meter. Gomi teaches a coriolis flow meter. It would have been obvious to a person having ordinary skill in the art to modify the flow meter of Stinson in view of Young with Gomi's coriolis flow meter in order to correct instrumental errors caused by a change in density and temperature of the fluid (see Gomi, abstract, lines 1-3).

Allowable Subject Matter

41. Claims 11 and 12 would be allowable if rewritten to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action and to include all of the limitations of the base claim and any intervening claims.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jonathan Snelting whose telephone number is 571-270-7015. The examiner can normally be reached on Monday to Friday 8:00 to 5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Saul Rodriguez can be reached on 571-272-7097. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Saúl J. Rodríguez/
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/Jonathan Snelting/
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